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cc: April
Task: 5523

DENVER
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June 20, 2013

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JUN 20 2013

DIV. OF OIL, GAS & MINING

Mr. Paul Baker
Utah Division of Oil, Gas and Mining
1594 West North Temple
Salt Lake City, Utah 84114

RE: Replacement Pages – NOI for M/047/0032

Dear Paul:

As discussed at our meeting last week, enclosed is the MR-REV (Large Mining Operations) form with replacement pages to address the transfer of ownership and control of NOI M/047/0032 to Tar Sands Holdings II, LLC. We have provided two copies of the redline strike out and two copies of the "clean" version of the replacement pages. This is an "insignificant" change to the approved NOI.

Please let me know if the replacement pages are acceptable and we will ask Kevin Baugh to sign the NOI as Manager of Tar Sands Holdings II, LLC.

We appreciate your assistance in this matter.

Very truly yours,



Denise A. Dragoo

DAD:jmc
Enclosures

cc: Kevin Baugh
Robert Prince, Esq.
Brent Andrews, Esq.
Scott Rasmussen, Esq.

RECEIVED

JUN 20 2013

Form MR-REV-att (DOGM - Revise/Amend Change Form)
(Revised September 14, 2005)

DIV. OF OIL, GAS & MINING

Application for Mineral Mine Plan Revision or Amendment

Operator: Tar Sands Holding II, LLC			
Mine Name: Asphalt Ridge			File Number: M/047/0032
Provide a detailed listing of all changes to the mining and reclamation plan that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise or amend the existing Mining and Reclamation Plan. Include page, section and drawing numbers as part of the description.			
DETAILED SCHEDULE OF CHANGES TO THE MINING AND RECLAMATION PLAN			
			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Cover sheet
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Page 4
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Page 5
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I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

KEVIN BAUGH
Print Name


Signature, Position

MANAGER

6/20/2013
Date

Return to:

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Phone: (801) 538-5291 Fax: (801) 359-3940

Q:\FORMS\MR-REV-att.doc

FOR DOGM USE ONLY:	
File #:	M/ /
Approved:	
Bond Adjustment: from (\$)	
to \$	

**Notice of Intent to Commence
Large Mining Operations
for a
Tar Sands Mining and Processing Facility**

MO47/0032

Prepared for:

Buena Ventura Resources Corporation
215 South State, Suite 550
Salt Lake City, Utah 84111

September 17, 1996

Prepared by:

J.P. REDD, INC.
400 Wakara Way
Salt Lake City, Utah 84108
801.582.4900
801.582.4966 Fax

Revised June 12, 2013
Tar Sands Holdings II, LLC
6445 South Wasatch Boulevard, Suite 105
Salt Lake City, Utah 84121
801.268.4331 - Phone
801.365.1256 - Fax

Notice of Intent to Commence Large Mining Operations

AThis Notice of Intent to Commence Large Mining Operations ("NOI") is required by the State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining (~~DOOGM~~) according to the Minerals Reclamation Program (~~("MRP")~~) for the Tar Sands Mining Operation. The following information is submitted based on the requirements set forth in the MRP Rule R647-4, Large Mining Operations. Tar Sands Holdings II, LLC ("TSHII") is the successor permittee to approved NOI, MO47/0032 pursuant to the application for transfer of NOI approved by DOGM by letter dated May 29, 2013. The NOI and environmental permits related to the Asphalt Ridge 2 project were transferred to TSHII by order dated April 5, 2013, Case No. 11-32259, U.S. Bankruptcy Court, District of Utah. TSHII has assumed responsibility for compliance with the terms of the NOI. Contact information regarding TSHII is provided herein. Further updates to the NOI format and reclamation plan will be provided by TSHII.

I. General Information

1. **Mine name:** ~~Crown~~ Asphalt Ridge, ~~LLC, Asphalt Ridge Tar Sands Mine 2~~
2. **Name of applicant or company:** ~~Crown Asphalt Ridge~~ Tar Sands Holdings, LLC (~~CARTSHII~~)

~~Corporation~~ Limited Liability Company ☒ Partnership ☐ Individual ☐
3. **Permanent address:** ~~Crown Asphalt Ridge~~ Tar Sands Holdings II, LLC
165 South Main St. Suite 400
6445 S. Wasatch Blvd., Ste. 105
Salt Lake City, UT ~~84111~~ 84121
Telephone: 801-~~521-4446~~ 268-4331
4. **Company representative:** ~~Thomas~~ ~~Bahtell~~ Kevin Baugh, Manager, ~~CARTSHII~~
5. **Location of operation:**
 - A. Uintah County
 - B. Tar sands will be mined from panels in the NE 1/4 of Section 31, T4S, R21E. The clean sand material from the operation will be placed in adjacent mined out surface areas in the S 1/2 of the SE 1/4 of Section 30 by arrangement with Uintah County for temporary storage or use by Uintah County. Later, as the mining operation progresses, the clean sand materials will be placed back into the mined out area in the NE 1/4 of Section 31.
 - C. The on-site Extraction Facility will be located on approximately five acres of land in the SE1/4 of the SE1/4 of Section 30, T4S, R21E, SLM.
 - D. UTM Coordinates - 4,476,577m North; 618,769m East

E. Latitude - 40° 26' North
Longitude - 109° 35.9' West

6. **Ownership of the land surface:** Private [fee]

~~Uintah Basin Resources, LLC~~
~~165 South Main St. Suite 400~~
~~TSHII~~
~~6445 S. Wasatch Blvd., Ste. 105~~
~~Salt Lake City, UT 84111~~
~~84121~~

7. **Owners of minerals to be mined:**

Uintah Basin Resources, LLC
165 South Main ~~St.~~, Suite 400
Salt Lake City, UT ~~84111~~ 84101, (subject to
Lease dated May 1, 2008 to TSHII, Lessee)

8. **Have the owners been notified in writing?** Yes

9. **Does the operator have legal right to enter and conduct mining operations on the land covered by this notice?** Yes

10. **The federal mining claim numbers, lease numbers, or permit numbers of any mining claims or federal or state leases or permits included in the lands affected.**

~~CARTSHII~~ has no federal lease, state lease, mining claim numbers or permit numbers in the described permit area. Uintah County has a DOGM permit to mine tar sands in the S1/2 of the SE 1/4 of Section 30, T4S, R21E. See case files at DOGM.

II. Maps and Figures

The following maps are attached as required by MRP Rule R647-4-105:

1. **Base Map:**

Included is an altered USGS 7.5 minute map (Figure 2). The land in question is shown on the Vernal NE Quadrangle map. It covers part of the Vernal NE township. The scale is 1 inch = 2,000 feet. The map shows the following information:

- A. Operations boundary of surface ownership of all lands to be affected by mining and extraction operations.
- B. *Perennial streams, springs, and other bodies of water, roads, buildings, landing strips, transmission lines, water wells, oil and gas pipelines, existing wells or boreholes, and other facilities within 500 feet of mining operations.*

There is a landing strip about a 1/4 mile southeast of the mine site. This landing strip is not active and has not been used in the past several years. According to the USGS map, there are no bodies of water within 500 feet. There are small intermittent streams, run-off areas, or creeks near the mine

site and extraction facility. An existing underground power line enters the property from the east boundary to an existing scale and weight shack used by Uintah County. There are no wells, pipelines, or boreholes within 500 feet of the lease property boundary.

- C. *Proposed route of access to mining operations from nearest public highway.*

Access to the property according to the map is via US-40 to an existing paved County road, which presently leads to the Uintah County tar sand operations, or via an existing dirt road which connects with US-40 where it passes through Asphalt Ridge. Initially the paved County road will be used for access.

- D. *Known areas which have been previously impacted by mining or exploration activities within proposed land affected.*

The area previously mined by BVRC and Uintah County are outlined. BVRC intends to work the same general area expanding to the South.

- E. *Acreage proposed to be disturbed or reclaimed each year for other suitable time period].*

BVRC mining operations will disturb about 2.5 acres per year at its initial mining rate, with concurrent reclamation following a reasonable operation period and depending on growth of the project.

2. Surface Facilities Maps:

Figure 3 using a scale of 1 inch equals 65 feet and Exhibit A, D and E using a scale of 1 inch equals 200 feet, show the following general information:

- A. Proposed surface facilities - buildings, stationary equipment, roads, utilities, power lines, proposed drainage control structures, topsoil storage areas, overburden dumps, process waste facilities, overburden disposal areas, solid and liquid waste disposal areas, treatment and containment facilities.

- B. Border clearly outlining extent of surface disturbed area proposed to be affected in the operations.
- C. Location of known test borings, pits, and core holes. The core holes shown on the maps were drilled by a previous landowner in the 1970's and early 1980's. These core holes were shown on the map for historical reference. Those core holes located on the proposed mine site will be mined through during mining operations and subsequently plugged if necessary after mining is still open.

The information shown on Figure 3 and Exhibit A, D and E is preliminary. Actual locations of roads, soil storage areas, etc. may vary but will remain within the Operations Boundary shown on Figure 2.

Figure 1 and Exhibits B, C, D, E and F have also been included with this report to help document the information presented in this report.

III. Operation Plan

The following information is required by MRP Rule R647-4-106.

- 1. **Minerals to be mined:** Tar sands
- 2. **Acreage to be disturbed:**

	Year				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Minesite (40 acres maximum):	2.5	2.5	2.5	2.5	2.5
Haul Roads:	3.0	0.0	0.0	0.0	0.0
On-Site Processing Facilities:	5.0	0.0	0.0	0.0	0.0
Existing Small Mining NOI:	<u>5.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Cumulative Disturbed Area	15.5	18.0	20.5	23.0	25.5

- 3. **Describe methods and procedures to be employed for mining, on-site processing, and concurrent reclamation.**

A. Mining Process

BVRC proposes to remove the topsoil¹ and store it for later reclamation. The topsoil removed for initial mine operations will be placed in a stockpile (visual berm) as shown on Exhibit A and used for final reclamation. The volume of soil to be placed in this

¹ According to page 8 of the Uintah County application to DOGM, all on-site soils have already been mixed with overburden during earlier attempts to mine.

stockpile is approximately 15,000 yd³. Topsoil will be removed using a dozer, front-end loader and trucks. Additional topsoil which is removed as mining progresses to the south will be immediately placed on the already backfilled part of the pit where waste sand and overburden has been replaced and rough graded. This process will be performed as outlined in this Notice and will continue through the mine development. In effect, the topsoil stockpile created at the beginning of the project will be used for final reclamation. BVRC does not expect there will be any excess topsoil which cannot be immediately replaced after the initial stockpile is created because the existing Uintah County operation did not retain any of the topsoil which was removed from the area. If this situation does occur though, the excess topsoil will be stored in a stockpile until it is needed.

The overburden removed for initial mine operations will be placed in a stockpile (visual berm) as shown on Exhibit A. The volume of soil to be placed in this berm is approximately 95,000 yd³. Overburden will be removed with tippers and dozers. If blasting is necessary for overburden removal it will be performed using the blasting protocol attached as Appendix F. The overburden removed during mining operations will be hauled to and placed in the most recently mined pit area. When the waste sand and overburden replaced in the pit area has reached capacity it will be rough graded and prepared for topsoil replacement. A small portion of the overburden will be used for berm construction around the extraction facility to comply with the Storm Water Permit issued by the Division of Water Quality.

The topsoil and overburden stockpiles (visual berms) will be piled at a minimum slope of 2h:1v and will be broadcast seeded after placement to prevent erosion. In addition, berms will be placed around the stockpiles and any rocks available from the removal operations will be placed on the stockpiles to prevent erosion.

After removal of the topsoil and overburden, tar sand will be mined using hydraulic shovels and asphalt reclaimers. BVRC plans to mine approximately 730,000 tons of tar sand ore per year. Blasting is not anticipated in the tar sand mining operation. The mined tar sand is then loaded into trucks which will utilize an end dump or side dump assembly and will deliver the tar sands to the extraction facility, where the trucks will dump the tar sands into a stockpile. This stockpile will have be approximately 8,000 tons (5,000 yd³) and will be utilized in the ongoing processing operations. The haul trucks have the following parameters:

Payload:	58 tons [Gross Vehicle Weight = 92 tons]
Number of wheels per truck:	Six [estimate]
Travel Speed:	20 mph on haul road

Approximately 650,000 tons per year of clean waste sand will be generated as a by-product of the extraction process. This sand will be initially used to backfill the open pit shown on Exhibit A which Uintah County has mined for tar sand and gravel for many years. As mining progresses and the existing pit reaches capacity, the waste sand will be placed in the most recently mined out area.

B. On-site Processing

On-site processing takes place at the extraction facility. BVRC proposes to process approximately 2,000 tons of mined raw tar sand feed per day with 2,000 barrels of solvent (diesel) to produce about 1,000 barrels of bitumen. The 1,000 barrels of bitumen will be processed through distillation into approximately 900 barrels of high quality asphalt and 100 barrels of light distillate. This assumes a minimum tar sand bitumen saturation of 8-10% by weight [ie, the tar sand will be 8-10% by weight bitumen], depending on its location within the deposit.

The bitumen will be separated from the solvent in atmospheric and vacuum distillation towers with the solvent recycled back to the extraction facility. Approximately 1,800 tons of clean sand will be generated per day.

The tar sands will be loaded from the stock pile into a feeder breaker/crusher. After the tar sand is crushed, it will be fed into the feed chute where spray nozzles will inject solvent into the tar sand in the feed chute to begin the wetting and dissolving process. Wet ore will enter a log rolling washer.

Initially, solvent will be purchased from local refineries. After both of the distillation units are working, light distillate produced in the unit will be used as the solvent with makeup solvent as needed. The initial makeup solvent will be selected based on its high flash point, good bitumen solubility, apparently low emulsion-forming tendency, low BTEX values, higher range of hydrocarbon chain lengths, cost, and its performance in surfactant wash testing. As a reference, Flying J Light Cycle Oil #4 was used in the IPF and has the following properties:²

- A. Bitumen solubility of 37.2% in the solvent
- B. Carbon chains of C12 to C25
- C. Flash point of 128 °F.
- D. True vapor pressure - approximately 6.8 pounds per gallon (less than #2 diesel fuel)

The log rolling washer will allow the addition of a solvent pool ahead of the countercurrent washer while utilizing twin mixing paddles to increase tar sand attrition. The solvent wet sand will move from the log rolling washer to the countercurrent washer. Most dissolving of bitumen [ie, separation of bitumen from sand] occurs in the countercurrent washer and solvent wash screw.

² "Initial Production Facility - Findings and Recommendations for Commercial Bitumen Production - Final Report"; Prepared by Swaco Geolograph; Tyler, Texas 75713-0637, page 17.

The solvent-bitumen stream from the countercurrent washer passes over a weir and flows to the auger tank. The auger tank feeds a sludge pump which transfers solids which have settled from the oil directly to the wash screws [solvent wash screw and primary wash screw]. The solvent-bitumen from the auger tank is cleaned by centrifuges. If this fluid has acceptable levels of materials, it will be pumped directly to the atmospheric and vacuum distillation equipment. If not, it will be shunted to the three phase decanters before distillation.

Solvent recovery is accomplished in an atmospheric distillation unit capable of processing 3,000 barrels per day. Heat is supplied by either propane or natural gas at a heat input rate of 10 Million British Thermal Units per hour (MMBTU/hr). The recovered solvent will pass through a heat exchanger to reduce solvent temperature. The solvent is then returned to the extraction plant at the wash screw. The bitumen is processed in the vacuum distillation unit which separates the asphalt from the light distillate.

After passing through the primary wash screw, the sand is clean and will contain negligible amounts of solvent or bitumen. Laboratory and IPF data (see Appendix A) support the claim that the sand is very low in VOC content after it has been treated. The data indicate that neither the solvent nor the bitumen are likely sources of BTEX.

Concrete foundations will be required for the storage tanks, process heaters, distillation towers, conveyors, screws, pumps and air coolers. Other equipment and facilities will be semi-permanent.

The extraction facility requires water input to operate. The required water will come from BVRC's existing Green River water rights delivered either by truck or through a pipeline via trade with the Ashley Valley Water District. A portion of the required water will come from collected precipitation that falls on the facility. Any water that collects on the extraction facility will be routed to a low point and pumped into a surface water recycle tank. Water will be collected from the mine site at a collection basin as shown on Exhibit B and pumped to the surface water recycle tank at the extraction facility. The water in the surface water recycle tank will be used in the extraction process.

The natural gas and electricity required for the equipment and facilities will be provided by Utah Gas Service and Utah Power via underground facilities as shown on Exhibit A.

C. Concurrent Reclamation

As mining progresses to the south and following a reasonable operation period, concurrent reclamation will be effected on the mined out areas. The amount of disturbed, unreclaimed land will be kept to a minimum. At the end of the project (approximately 11 years), full reclamation will be completed. Initially waste sand from the extraction process will be placed against the highwall in the existing Uintah County pit area. Waste sand will continue to be stacked to the east and tied into the overburden stockpile shown in Exhibit A until the slope is restored and the highwall is eliminated. When the existing pit has reached capacity and mining progresses to the south, overburden from the newly

stripped area will then be placed and rough graded. Topsoil from the newly stripped area will then be used for reclamation of these already rough graded areas. During prior mining operations in the Uintah County disturbed area, topsoil was removed and mixed with overburden and is therefore not available for replacement. Due to the scarcity of topsoil, reclamation may be limited to areas where adequate topsoil and moisture are available to support sustained revegetation. Reclamation activities will be concentrated where the maximum benefit can be achieved in a coordinated effort with the Division. Programs to augment the natural topsoil with recycled composts, sewage sludge or agricultural waste will be explored if cost effective. Seeding will take place at final reclamation.

4. Elevation of groundwater: 27-40 feet below grade³

There is no reason to believe that the ground water or area water wells will be effected by the proposed operations. Mining at the existing Uintah County pit has reached the base of the tar sand formation. No ground water was encountered during these mining operations. The tar sand formation dips to the south-southwest away from the referenced wells. The Division of Water Quality has issued a Permit-By-Rule letter which is attached as Appendix G eliminating the requirement for a ground water permit.

5. Thickness of Soil Material to be stockpiled:

Thickness: Ranging from 0 to 60 inches.

Area from which topsoil material can be salvaged: See Appendix A.

Volume of topsoil to be stockpiled: 15,000 yd³ (405,000 ft³)

See Appendix A for additional soils information.

6. Thickness of overburden:

Overburden thickness in and near the tar sand pit varies from 0 to 200 feet thick. Both the 5,880 and 5,900 foot levels are virtually free of overburden in the Uintah County pit. Refer to attached Exhibits B and C for overburden thickness.

7. Thickness of mineral deposit: Approximately 100 feet thick. See attached Exhibits B and C.

8. Volume of refuse, tailings and processing waste stockpiles:

There are no waste rock or tailings from this process. The clean sand is the only rock product. It will be initially replaced in the Uintah County pit area and, as mining

³ Groundwater Elevation based on static water levels on record at the Division of Water Rights for two irrigation wells located approximately 3/4 mile from the BVRC property. The static water level in one well was 27 feet below grade and 40 feet below grade in the other well. See Appendix E.

progresses, into the mined out portions of the pit area.

9. Acreage and capacity of tailings ponds and water storage pond to be constructed:

There are no tailings generated through this process. Any waste petroleum material [taken out of the storage tanks which are part of the extraction facility] will be transported off site. No tailings facilities or water storage/treatment ponds will be constructed.

10. Describe how topsoil or subsoil material will be removed, stockpiled and protected:

Any topsoil will be removed with loaders, dozers, and trucks. The topsoil removed for initial mine operations will be placed in a stockpile (visual berm) as shown on Exhibit A and used for final reclamation. Additional topsoil which is removed as mining progresses to the south will be immediately placed on the already backfilled part of the pit where waste sand and overburden has been replaced and rough graded.

11. Describe how overburden material will be removed and stockpiled:

Overburden will be removed with scrapers, shovels, hydraulic shovels, loaders, draglines, backhoes, rippers and dozers [blasting only if necessary] and then removed with front-end loaders and trucks or moved with dozers and loaders. The overburden removed for initial mine operations will be placed in a stockpile as shown on Exhibit A. The overburden removed during mining operations will be hauled to and placed in the most recently mined pit area. When the waste sand and overburden replaced in the pit area has reached capacity it will be rough graded and prepared for topsoil replacement. A small portion of the overburden will be used for berm construction around the extraction facility to comply with the Storm Water Permit issued by the Division of Water Quality.

12. Describe how tailings, waste rock, rejected materials, etc. will be disposed of:

See Paragraph 8 above.

13. Potentially deleterious materials must be analyzed for toxicity. Describe the nature of any deleterious materials which will be used, encountered, or generated on-site.

Other than the tar sand itself, the only additional materials needed in this operation are the extraction solvent [such as Light Cycle Oil #4], surfactant, lubricating oil or grease for moving parts in machinery, diesel fuel for the trucks, gasoline for some of the vehicles, and water. Natural gas and propane are also used. The skimmed oil from the API separator and dissolved air flotation units will be shipped off site to a licensed waste management company such as USPCI or Aptus.

The clean sand resulting from the tar sand extraction process has been laboratory tested and found to have a very low (less than 2 milligrams/liter) BTEX content. The clean

sand will continue to be tested for BTEX content every six months during operation of the extraction facility.

14. For each tailings pond, sediment pond or other major drainage control structures attach design drawings and typical cross-sections:

There are no tailings generated through this process. No tailings facilities or water storage/treatment ponds will be constructed. No sediment ponds will be constructed.

15. Describe any proposed effluent discharge points (UPDES) and show their location on the map. Give the proposed discharge rate and expected water quality. Attach chemical analyses of such discharge, if available.

BVRC is proposing no water discharge or discharge of any other deleterious substance and will receive a "No Discharge" storm water permit from the Division of Water Quality prior to commencing operations. A berm will be constructed around the site to route off-site storm water around the site and into existing natural drainage channels. Any water that collects on the extraction facility will be routed to a low point and pumped into a surface water recycle tank. Any on-site storm water at the mine site will be collected in the collection basin shown on Exhibit D and pumped to the surface water recycle tank at the extraction facility. The water in the surface water recycle tank will be used in the extraction process. In the unlikely event that standing water should occur, BVRC will treat the water for insect control as needed.

16. Vegetation:

(a) Vegetation Survey:

Sampling Method Used: Line Intercept

Number of plots or transects: 5

Ground Cover	Percent
Vegetation (perennial grass, forb and shrub cover)	41.2
Litter	7.2
Rock/rock fragment	1.0
Bare Ground	50.6
Total	100

Revegetation Requirement: 29%

Four predominant perennial species of vegetation growing on the area:

- | | |
|-----------------|--------------------------|
| 1. Utah Juniper | 2. Wyoming Big Sagebrush |
| 3. Galleta | 4. Cushion Buckwheat |

- (b) Photographs: None submitted.

See Appendix B for more detailed vegetation information.

17. Soils:

- (a) Each soil type to be disturbed needs to be field analyzed for Depth of Soil Material, Volume for Stockpiling, Texture (field determination) and pH (field determination).

Soil Type	Depth (inches)	Volume (cubic feet)	Texture	pH
Abracon Loam	60	8,150	loam	n/a
Badland-Rock	0	n/a	rock	n/a
Clapper Gravelly Loam	13	1,766	gravelly loam	7.6
Denco Silty Clay Loam	30	4,075	silty clay Loam	n/a
Henrieville Sandy Loam	60	8,150	sandy loam	7.6
Montwel-Honlu-Rock	33	4,482	loam	7.6
Mikim Loam	60	8,150	loam	7.8
Milok Fine Sandy Loam	60	8,150	sandy loam	7.6
Winona Very Gravelly Loam	9	1,222	gravelly loam	7.5

- (b) Problem Soils: There are no problem soils areas at the site.

See Appendix A for additional soil information and lab analysis. BVRC had an extensive soil analysis performed by JBR Consultants, Salt Lake City, Utah. The results of the lab analysis are shown in Appendix A. During the analysis, selenium and alkalinity test were not performed although a pH was. If required by the Division, the soil could be retested for selenium prior to reclamation.

18. Provide a narrative description of the geology of the area and/or a geologic cross-section:

See Appendix C for a description of the geology in the area. See Exhibits B, C and F for geologic cross-sections of the area.

IV. Impact Assessment

The following information will provide a general narrative description identifying potential surface and/or subsurface impacts, as specified in MRP Rule R647-4-109. Where applicable, this description includes surface and groundwater systems, threatened or endangered species or their critical habitats, existing soil resources for reclamation, slope stability, erosion control, air quality, and public health and safety.

1. Surface and Groundwater Systems:

Uintah County has been mining tar sands in the area for many years.⁴ BVRC will receive a "No Discharge" storm water permit from the Division of Water Quality prior to commencing operations. BVRC anticipates that there will be negligible impact on surface water and groundwater. A berm will be constructed around the site to route off-site storm water around the site and into existing natural drainage channels. Any water that collects on the extraction facility will be routed to a low point and pumped into a surface water recycle tank. Any on-site storm water at the mine site will be collected in the collection basin shown on Exhibit D and pumped to the surface water recycle tank at the extraction facility. The water in the surface water recycle tank will be used in the extraction process.

2. Threatened or Endangered Species:

Endangered wildlife with a potential to reside in the study area are the bald eagle and the black-footed ferret. Black-footed ferrets are reliant upon prairie dogs to construct their burrows and for prey. Since no prairie dogs exist in the area, it was concluded that black-footed ferrets would not be found there either.

The bald eagle was not observed in the study area during the survey cited above. It is primarily a winter resident in Utah. It would be unlikely to reside in the study area due to a lack of prey.

⁴ According to page 11 of the Uintah County application to DOOM, the runoff patterns have been altered by the removal of asphalt and displacement of overburden.

Of possible candidate species, only the Swainson's and ferruginous hawks would potentially reside in the study area. No nest sites were noted in the tops of pinion or juniper trees.

BVRC concludes that this project will have a minimal impact on any threatened or endangered species.

3. Existing Soil Resources:

BVRC anticipates no significant topsoil losses from this project. The topsoil⁵ removed for initial mine operations will be placed in a stockpile (visual berm) as shown on Exhibit A and used for final reclamation. The volume of soil to be placed in this stockpile is approximately 15,000 yd³. Additional topsoil which is removed as mining progresses to the south will be immediately placed on the backtilled part of the pit where waste sand and overburden has been replaced and rough graded. This process will be performed throughout the mine development.

During its previous mining operations, Uintah County removed topsoil and mixed it with overburden leaving no topsoil for reclamation. Due to the topsoil deficiency, topsoil replacement and reclamation may be limited to areas which can support sustained revegetation. Replacement of topsoil and reclamation activities will be selectively concentrated in areas where the maximum benefit can be achieved in a coordinated effort with the Division. This would include a strategy of selectively focusing reclamation on areas of drainage, shaded slopes, buffer zones and level areas. Islands of vegetation would more closely approximate the pre-mining conditions and result in more sustainable reclamation than would be possible with a thin layer of topsoil. Programs to augment the natural topsoil with recycled composts, sewage sludge or agricultural waste will be explored if cost effective.

4. Slope Stability:

Slope stability will be maintained during mining operations. Overburden piles and on-site slopes (excluding highwalls) will be sloped at 2h:1v to minimize safety hazards.

5. Erosion Control:

Due to the very small amounts of rainfall in the area, BVRC anticipates very little problem with erosion. Natural terrains are mostly steep slopes and natural arroyos. Previous mining operations have removed most of the natural vegetation in the existing Uintah County Tar Sands Pit. BVRC will implement good mining practices to control erosion.

⁵ According to page 8 of the Uintah County application to DOGM, all on-site soils have already been mixed with overburden during earlier attempts to mine.

Stockpiles will be broadcast seeded and any rock available during removal operations will be placed on the stockpiles to prevent erosion. BVRC will use ripping/discing of the surface soils to six inches deep, in a terracing fashion on hillsides, and revegetate as set forth herein.

6. Air Quality:

BVRC has received an Approval Order from the Utah Division of Air Quality. The total estimated air emissions for the Tar Sands Mining and Extraction facility are as follows:

Pollutant	Estimated Air Emissions (lbs/day)	Estimated Air Emissions (tons/year)
PM ₁₀	405.23	73.95
SO ₂	0.30	0.06
NO _x	50.29	9.18
CO	10.56	1.93
VOC	9.43	1.72
Methane	1.37	0.25
HAPs	4.89	0.89

The major contributors to PM₁₀ emissions are the trucks driving on the paved roads. These emissions were calculated using a road length of 0.75 miles with a 20 mph speed limit. The current mining operations appear to have little effect on air quality in the area. BVRC anticipates no adverse air quality impacts.

7. Public Health and Safety:

BVRC will comply with all applicable OSHA and MSHA regulations. This mining operation will have no adverse health or safety impact to local residents, barring an unforeseen spill or accident.⁶ BVRC intends to apply for an appropriate storm water permit. The storm water permit, to be issued by the State of Utah, Division of Water Quality, will require that a Storm Water Pollution Prevention Plan [SWPPP] be on file and that preventive measures be in place. It also must contain a list of actions to be taken in case of a spill or accident. If blasting operations are required they will be conducted in accordance with the blasting protocol attached as Appendix F. To prevent unauthorized public access, a locking gate will be located at the entrance road and fencing will remain in place along the eastern property boundary with the Air Village Hill Subdivision and other areas where direct public access is probable. Warning signs will be placed along

⁶ According to page 11 of the Uintah County application to DOOM [1988] the area south and adjacent to existing pits is currently mined by the Asphalt Ridge Operating Company (now BVRC). Lands southwest and adjacent highwalls are publicly owned [BLM] but are not used for public recreation.

the entire property boundary. A fence is being constructed along the east property line of the S/2NE/4 of Section 31 by the adjacent landowner which will prevent access from that area. If entry to the property becomes a problem, additional fencing will be constructed.

V. Reclamation Plan

The following reclamation plan conforms to the requirements of MRP Rule R647-4-110-111.

1. **List current land uses other than mining:** None.
2. **List future post-reclamation land uses proposed:** Wildlife habitat.
3. **Describe each phases of reclamation of the minesite, in detail:**

A. Disposal of Trash

At the end of the project all trash and other waste will be removed. Subject to determination if appropriate use requiring retention for a post-mining purpose, the buildings and their foundations will be removed from the site.

B. Backfilling and Grading

Initially the clean waste sand from the extraction process will be backfilled against the highwall in the existing Uintah County pit area. Waste sand will continue to be stacked to the east and tied into the overburden stockpile shown in Exhibit A until the slope is restored and the highwall is eliminated. When the existing pit has reached capacity and mining progresses to the south, overburden from the newly stripped area will then be placed and rough graded. The backfilled areas will be graded and recontoured to the existing topography as nearly as possible as shown on the post mining cross section topography attached as Exhibit F. BVRC anticipates a post mining swell of approximately 15% to 20% due to the expansion of the clean waste sand and overburden. Recontouring will reestablish drainage patterns as nearly as possible and direct runoff flow to the existing natural drainage to the east and off the property. BVRC does not anticipate any problems reestablishing drainage from the higher elevations on the west of the area to the east where it will rapidly disperse over the flatter terrain.

C. Soil Material Replacement

i. How much soil material is planned to be put on the area to be reseeded?

All of the topsoil from the proposed (disturbed) area will be replaced at reclamation. Approximately 15,000 yd³ will be removed during initial mining operations and will be stockpiled as shown on Exhibit A and used in final reclamation. Approximately 60,000 yd³ of additional topsoil will be removed and replaced from the proposed area.

ii. Where will this material come from?

Topsoil from the newly stripped area will then be used for reclamation of these already rough graded areas. During prior mining operations in the Uintah County disturbed area, topsoil was removed and mixed with overburden and is therefore not available for replacement. It is unknown at this time where other topsoil might be obtained. Programs to augment the natural topsoil with recycled composts, sewage sludge or agricultural waste will be explored if cost effective.

iii. How will it be transported and spread?

The topsoil will be transported by truck and spread by loaders, graders, and dozers.

D. Seed Bed Preparation

DOOM recommends ripping or discing six inches deep. BVRC will follow DOOM recommendations in this area, consistent with physical conditions on the ground.

E. Seed Mixture

DOGM recommends 12.35 pounds per acre seeding rate. The revegetation species list that will be used for reclamation of the BVRC Asphalt Ridge Tar Sands Mine will include the following species and seeding rate. Seeding rates will be increased by 50% if broadcast seeding is incorporated.

Common Name	Species Name	Seeding Rate (lb/acre)
'Hycrest' crested wheatgrass	Agropyron cristattun 'Hycrest'	0.5
Intermediate wheatgrass	Agropyron intermedium	1.0
'Piute' Orchard Grass	Dactylis glomerata	0.5
Basin Wildrye	Elymus cinereus	1.5
Indian ricegrass	Oryzopsishymenoides	1.5
Cicer Milkvetch	Astragalas cicer	1.0
Ladac Alfalfa	Medicago sativa	1.0

Common Name	Species Name	Seeding Rate (lb/acre)
Yellow sweetclover	Melilotus officinalis	0.5
Palmer penstemon	Penstemon palmeri	0.5
Small burnet	Sanguisorba minor	1.5
Wyoming big sagebrush	Artemisia tridentata wyomingensis	0.1
4-Wing Saltbush	Atriplex canescens	1.0
Rubber rabbitbrush	Chrysothamnus nauseosus	0.25
Forage kochia	Kochia prostrata	0.5
Bitterbrush	Purshia tridentata	1.0
Total		12.35

F. Seeding Method

DOGM recommends planting the seed with a rangeland or farm drill, or if broadcast seeded, harrow or rake the seed 1/4 to 1/2 inch into the soil. Fall is the preferred time. BVRC will follow DOGM recommendations in this area.

VI. Variance

Any planned deviations from Rule R647-4 must be identified below, as specified in MRP Rule R647-4-112. For each variance, the following information needs to be submitted:

- A. The rule as to which a variance is requested,
- B. The variance requested and a description of the area that would be affected,
- C. Justification for the variance, and
- D. Alternate methods or measures to be utilized

A variance shall be granted if the alternative is consistent with the Act. Any variance must be approved by DOGM in writing.

BVRC has no plans to request a variance at this time.

VII. Surety

A reclamation surety must be provided to DOGM prior to final approval, as outlined in MRP Rule R647-4-113. In calculating the amount, DOGM will consider the following major steps:

- A. Cleanup and removal of structures
- B. Backfilling, grading, contouring
- C. Soil material redistribution and stabilization
- D. Re-Vegetation

A dozer will be used to reduce slopes, push piles, build berms, and cut catch basins. The planting estimate includes discing before planting, using a rangeland drill, and the cost of broadcasting. Discing will be done by a bulldozer. The rangeland drill will be pulled by a tractor. Broadcasting will be done by truck or by hand.

The purpose of monitoring is to review the success or failure of the re-vegetation efforts for the areas within the mine site and to recommend changes necessary to improve the reclamation effort. Each area will be reviewed for three continuous years beginning in the summer two years after the planting has occurred. A one to three page report will be filed summarizing what is found on the site and what is necessary to improve the site, and latter reclamation efforts on other areas if applicable.

BVRC plans to disturb approximately 2.5 acres per year at its initial mining rate, plus 5 acres for its Extraction Facility. Following a reasonable operation period, annual concurrent reclamation is projected to be 2.5 acres per year. The maximum total area to be disturbed by this project is 43 acres, based upon current planning.

The estimated volumes and acreage that have been used in this estimate are as follows:

Haul Roads = 3 acres
Processing Facilities = 5 acres
Berms = 5 acres
Mined Pit Area = 30 acres

Total Estimated Disturbed Area = 43 acres

Assuming demolition and removal of all processing facilities and old pit highwalls will remain benched and partially backfilled against.

Pits will be partially backfilled with clean sands, overburden and topsoil. Revegetation will include mulching, discing, fertilizing and drill or broadcast seeding. Haul roads will be ripped, regraded, topsoiled and revegetated.

BVRC proposes the following reclamation estimate:

Activity	Quantity	Units	Cost per Unit (\$/unit)	Cost (\$)
Demolition and removal of processing facilities	1	sum	5,000	5,000
Grading sand/overburden backfill (1 foot depth, 30	48,400	yd ³	0.19	9,196
Placing topsoil on overburden (6 inch depth, 30	24,200	yd ³	0.31	7,502
Placing soil on haul roads	3	acre	305	915
Ripping haul roads	3	acre	228	684
Mulching (1 ton/acre) and crimping/discing	43	acre	110	4,730
Fertilizing (200 lb/acre diammonium phosphate)	43	acre	90	3,870
Drill seeding (estimated 80% of area)	34.4	acre	180	6,192
Broadcast seeding (estimated 20% of area)	8.6	acre	184	1,582
General site cleanup and trash removal	43	acre	50	2,150
Monitoring	3	year	600	1,800
Mobilization	2	equip	1,000	2,000
Reclamation supervision (estimated 6 days)	48	hours	30	1,440
Subtotal				47,061
10% contingency				4,706
Subtotal				51,767
Inflated at 2.58% per year to year 2001				7,032
Total				58,799

VIII. Signature Requirement

I hereby certify that the foregoing information presented in this report is true and correct, subject to updates by TSHII.

Signature of ~~Applicant~~ Permittee: _____

Name: ~~Jay Mealey~~Kevin Baugh

Position: ~~Vice President, BVRC~~ — Manager, Tar Sands Holdings II,

LLC

Date: September 19, 1996